IN THE CLAIMS

1. (Previously presented) A method of manufacturing a semiconductor device comprising:

forming a tungsten layer pattern having an oxidized surface on a substrate;

introducing a source gas including silicon into the oxidized surface of the tungsten layer pattern to form a protecting layer that prevents an abnormal growth of oxide contained in the oxidized surface of the tungsten layer pattern, wherein introducing the source gas to form the protecting layer includes

applying energy to the source gas to form silicon ions, and

implanting the silicon ions to the oxidized surface of the tungsten layer pattern; and

thermally treating the substrate.

2. (Original) The method of claim 1, further comprising forming a tungsten oxide layer on the oxidized surface of the tungsten layer pattern.

3. (Original) The method of claim 2, wherein the tungsten oxide layer is formed by a thermal process.

4. (Original) The method of claim 1, wherein forming the protecting layer comprises:

maintaining a temperature of the substrate including the tungsten layer pattern in a range of about 300°C to about 600°C; and

introducing a silane gas onto the oxidized surface of the tungsten layer pattern at a flow rate of about 10sccm to about 1,000sccm to react with the oxidized surface of the tungsten layer pattern.

5. (Original) The method of claim 1, wherein the substrate is thermally treated at a temperature of about 300°C to about 1,100°C.

6. (Original) The method of claim 1, wherein the protecting layer has a thickness of about 1Å to about 100Å.

7. (Cancelled)

8. (Previously presented) A method of manufacturing a semiconductor device comprising:

forming a photoresist pattern on a tungsten layer that is formed on a substrate;

selectively etching the tungsten layer using the photoresist pattern as an etching mask to form a tungsten layer pattern on the substrate;

removing the photoresist pattern;

introducing a source gas onto a surface of the tungsten layer pattern, the source gas including silicon;

applying energy to the source gas to form silicon ions;

implanting the silicon ions into the surface of the tungsten layer pattern to form a protecting layer that prevents an abnormal growth of oxide; and

thermally treating the substrate.

9. (Original) The method of claim 8, wherein the photoresist pattern is removed by an ashing process and a stripping process.

10. (Original) The method of claim 8, wherein forming the protecting layer further comprises:

maintaining a temperature of the substrate including the tungsten layer pattern in a range of about 300°C to about 600°C; and

introducing a silane gas onto the tungsten layer pattern at a flow rate of about 10 sccm to about 1,000 sccm to react the silicon with the tungsten layer pattern.

11. (Original) The method of claim 8, wherein the substrate is thermally treated at a temperature of about 300°C to about 1,100°C.

12. (Original) The method of claim 8, wherein the protecting layer has a thickness of about 1Å to about 100Å.

13. (Original) The method of claim 8, further comprising an insulating layer formed on the substrate including the tungsten layer pattern.

14. (Currently amended) A method of manufacturing a semiconductor device comprising:

a step for forming a tungsten layer pattern having an oxidized surface on a substrate;

a step for forming a protecting layer on the oxidized surface of the tungsten layer pattern that prevents an abnormal growth of oxide, the step for forming the protecting layer including

introducing a source gas including silicon on the oxidized surface of the tungsten layer pattern, ~~pattern; and~~

applying energy to the source gas to form silicon ions, and

implanting the silicon ions to the oxidized surface of the tungsten layer pattern; and

a step for thermally treating the substrate.

15. (Previously presented) The method of claim 14, further comprising a step for forming a tungsten oxide layer on the oxidized surface of the tungsten layer pattern.

16. (Previously presented) The method of claim 15, wherein the step for forming the tungsten oxide layer comprises a thermal process.

17. (Previously presented) The method of claim 14, wherein the step for forming the protecting layer comprises:

a step for maintaining a temperature of the substrate including the tungsten layer pattern in a range of about 300°C to about 600°C; and

a step for introducing a silane gas onto the oxidized surface of the tungsten layer pattern at a flow rate of about 10 sccm to about 1,000 sccm.

18. (Previously presented) The method of claim 14, wherein the step for forming the tungsten layer pattern comprises thermally treating the substrate at a temperature of about 300° C to about 1,100° C.

19. (Previously presented) The method of claim 14, wherein the step for forming the protecting layer comprises forming the protecting layer to a thickness of about 1Å to about 100Å.

20. (Cancelled)